



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,259	02/11/2005	Mihoko Ohashi	Q86191	9908

23373 7590 04/27/2007  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER
----------

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
----------	--------------

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/524,259

**Applicant(s)**

OHASHI ET AL.

**Examiner**

Susan W. Berman

**Art Unit**

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/06, 2/05</u> . | 6) <input type="checkbox"/> Other: ____  |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of parentheses in claims 1, 2, 3, 4, 28, 29, 30 and 31 to define Y<sup>1</sup> or Y<sup>2</sup> makes the claims indefinite. The reason is that it is not clear whether applicant intends to claim the material encompassed by parentheses to be claimed or not. Additionally, the phrase “hydrogen atoms may be substituted” is indefinite because it is not clear whether the hydrogen atoms are substituted or not. It is suggested that the phrase “may be” be replaced with “are” or with “are optionally”. See claims 6, 7 and 12 also. Claims 16, 17, 23, 24, 33, 35, 38 are indefinite because the claims recite an optical “material” that is a “curable” or “photocurable” polymer or composition, however, in order to be an “optical material” the polymer or composition must be cured.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-8, 10-28, 30 and 32-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Feiring et al (6,790,587). Feiring et al disclose fluorinated polymers and photoresists. The fluorinated polymers have pendant fluorinated alkyl groups with -OH groups. Feiring et al teach that the polymers can contain components having protected acidic fluorinated alcohol groups that are deprotected when exposed to acid from the photoacid generator (column 11, line 27, to column 12, line 37). The protective group component can be lactone, tetrahydrofurfuryl or 3-oxocyclohexyl group (column 11, lines 42-58). The preferred protecting group methoxy methyl ether (MOM) is used in Examples 12, 14, 15, 20, 21, 23, 25-28, 29, 34-38 and 40-44. Feiring et al clearly teach that cyclic ether structures are equivalent to MOM structures in the disclosed polymers. The photoactive component is a photoacid generator or a photobase generator (column 10, line 56, to column 11, line 26).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10-28, 30 and 32-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al (6,069,215) in view of Feiring et al (6,790,587). Araki et al '215 disclose materials for coating compositions comprising a fluorine-containing polymer derived from fluorine-containing monomers having functional groups, such as epoxy groups (column 3, line 43, to column 4, line 8, column 6, lines 18-64, column 8, lines 8-10 and 25-36). Monomer (M2) in instant claim 3 is taught in column 7, formula (2). Monomer (M3) in instant claim 4 is taught in column 7, formula (5). Use for optical parts is taught in column 24, lines 59-67. Araki et al '215 does not mention adding a photoacid generator.

Feiring et al teach adding a photoacid generator to an analogous fluorinated polymer to provide acid upon exposure to radiation that causes deprotection and production of hydrophilic acid groups in the fluorinated polymer to facilitate development under aqueous conditions. It would have been obvious to one skilled in the art at the time of the invention to add a photoacid generator to the fluorinated polymer compositions disclosed by Araki et al, as taught by Feiring et al in analogous art. One skilled in the art at the time of the invention would have been

Art Unit: 1711

motivated by a reasonable expectation of providing acid upon exposure to radiation that causes deprotection and production of hydrophilic acid groups in the fluorinated polymer to facilitate development under aqueous conditions, as taught by Feiring et al.

### ***Allowable Subject Matter***

Claims 9 and 29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art does not teach fluorinated polymers having pendant groups as defined in the instant claims wherein the cyclic ether structure is an oxetane structure.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Araki et al (6,901,205) disclose materials for an optical waveguide comprising a fluorine-containing prepolymer having a carbon-carbon double bond in a side chain and/or at the end of the main chain. A structural unit "A" is taught as an optional component and is derived from fluorine-containing monomers having functional groups, such as epoxy groups (column 10, line 66, to column 12, line 53). Photoacid generators are taught in column 21, lines 32-47.

The following references made of record and not relied upon are considered pertinent to applicant's disclosure but are not prior art.

Araki et al (6,908,724, having an effective filing date of 08-14-2003) disclose a fluorine-containing polymer having an acid-reactive group for a photoresist composition:

Art Unit: 1711

Chung et al (6,911,509). Chung et al disclose functional fluoro-monomers and functional fluoro-polymers obtained therefrom wherein the functional groups can be epoxy groups.

Yoon et al (6,800,418, filed 10-04-02) disclose fluorine-containing photosensitive polymers of average molecular weight from 3,000-100,000, having a hydrate structure and a pendant fluorinated oxetane group of formula 13 (Abstract, column 6, lines 18-50, and column 9, line 65, to column 10, line 53, Examples 9, 11 and 12). The cyclic ether structures taught are not bonded to a fluorine-containing alkyl group, as set forth in the instant claims. Photoacid generators are taught from column 10, line 50, to column 11, line 8. The compositions are used in photoresists and semiconductor devices (column 11, lines 27-44).

JP 2002-372601, published 12-26-2002, discloses fluorinated polymers having pendant epoxy groups and pendant fluorinated alkyl groups or alkylether groups. J 601 does not teach a pendant group that is a fluorinated alkyl group with an epoxy group, as set forth in the instant claims.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SB  
4/13/07

  
Susan W Berman  
Primary Examiner  
Art Unit 1711